

# PATENT SPECIFICATION

955,900

DRAWINGS ATTACHED.

331 25

955,900



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## COMPLETE SPECIFICATION.

### Improvements in or relating to Venetian Blinds.

We, HUNTER DOUGLAS INTERNATIONAL (QUEBEC) LTD., a Corporation organized and existing under the laws of Canada, of 9500 St. Lawrence Boulevard, Montreal, Province of Quebec, Canada, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

5 This invention relates to a venetian blind having a winding mechanism and a tilting mechanism for the slats of the blind, and has for its object the provision of a venetian blind equipped with one single controlling mechanism for raising and lowering the blind and for tilting the slats of the blind into the desired position. With the venetian blind according to the invention this is achieved in that a slip coupling is provided between 10 the winding mechanism and the tilting mechanism to prevent tilting of the slats of the blind by themselves, which tilting mechanism is mounted together with a winding drum upon a driving spindle or in a 15 driving pipe, which spindle or pipe is provided with a brake or other locking device. As the slip coupling for the tilting mechanism need only offer sufficient resistance to prevent tilting of the slats of the blind by 20 themselves, the friction between the parts of the slip coupling is slight, so that during the drawing up of the blind it is only necessary to overcome a small force due to the resistance of the slip couplings, over and above 25 the force caused by the weight of the blind. The brake or locking device may similarly be executed in the form of a slip coupling. In this way the result is obtained that it is 30 possible to arrest the downward movement 35 of the blind when the latter has reached the desired position of adjustment.

40 The brake or locking device can, if desired, be operated by means of the controlling mechanism for raising and lowering

the blind and for tilting the slats. In this way 45 the advantage is achieved that although two means are employed for raising and lowering the blind and for tilting the slats, there is nevertheless only one controlling mechanism.

An advantageous embodiment of the 50 venetian blind is characterized in that the brake or locking device is provided with one or more projecting parts through which there passes a cord, tape, string or similar means serving for raising and lowering the blind and 55 for operating the brake or locking device.

The invention will be described below with 60 reference to the accompanying drawings showing by way of example an embodiment 65 of the venetian blind according to the invention.

Figure 1 shows partly in longitudinal section and partly in elevation a tilting and winding mechanism combined into one 65 single unitary mechanism.

Figure 2 is a section taken on the line 70 II—II of Figure 1;

Figure 3 is a section taken on the line 70 III—III of Figure 1;

Figure 4 represents a part of Figure 1 drawn to a larger scale;

Figure 5 gives a longitudinal section of the locking device and the controlling mechanism; and

Figure 6 gives a side view of Figure 5.

For the elucidation of the invention a unitary tilt control and slat raising and lowering mechanism for a venetian blind has been selected which is also described and claimed in our co-pending Application No. 10241/62 (Serial No. 955,899) with which, as shown in Figures 1—4, a head pipe is provided in which tilting and winding mechanisms combined into one single unitary mechanism are accommodated, one of which single unitary mechanisms is shown.

These unitary mechanisms each have a

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2 cap 1 fitted in the head pipe 2, which latter is rotatably mounted in a support 3. This pipe 2 is driven by a driving mechanism not shown in the drawings, thereby causing the cap 1 to rotate. The end of a flattened tube 4 is inserted in this cap, on which flattened tube 4 there is mounted an externally threaded winding drum 5 which is axially displaceable. 5 a rope pulley 19 over which there passes an endless controlling cord 20. Fitted rotatably to the controlling mechanism is a locking device 21 having a projecting part 22 through which pass the various parts of the cord 20. This locking device has a brake shoe 23 which has a surface 24 that interacts with a surface 25 of the rigidly positioned support 17. 70

10 Positioned co-axially to the winding drum 5 is a tilting device 7 having over a part of its inner circumference a screw thread that engages in the screw thread of the winding drum 5. This tilting device is rotatable in the pipe 2 over such an angle that in the two directions of rotation it can be so far rotated as to effect good closure of the slats of the venetian blind. 75

15 There is furthermore situated in the pipe 2 an end cap 8, and on the tilting device 7 there is provided a C-shaped spring 9 which acts as a slip coupling the said spring 9 having two limbs 10 to which the ends of a ladder tape 11 are fixed. Ladder cord may 80 of course be used as alternative to ladder tape for supporting the slats of the venetian blind. 85

20 The mechanism described in the foregoing operates as follows: 90

25 When the pipe 2 is rotated, the cap 1 and the tube 4 will be rotated, whilst at the same time the tilting device 7 is turned to such an extent that a projecting part 12 thereon strikes against the end of a groove 13 situated in the support 3. On further rotation of the pipe 2 the winding drum 5 will be displaced in an axial direction on the flattened tube 4, in the course of which action 95 the hoisting cord 6 passing through a slot 14 in the tilting device 7 is wound up in the released convolutions of the external screw thread of the drum 5. When the pipe 2 is rotated in the reversed direction the hoisting cord 6 is paid out. When the blind is entirely 100 or partly let down, the pipe 2 is rotated in the reversed direction to that of the lifting or lowering operation, the tilting device 7 being carried along with it until the slats of the venetian blind occupy the desired slanting position. The slip coupling 9 ensures that this 105 position is maintained. 110

30 The slip coupling 9 that is executed as a spring is assigned such a strength that it can offer resistance to the forces that tend to 115 rotate the slats, but cannot offer resistance to the forces that move the blind to its lowest position. These forces are opposed by the locking device represented in Figures 5 and 6. 120

35 Figures 5 and 6 show a controlling mechanism 15 which is rotatably mounted with its end 16 in a support 17. The other end 18 of this controlling mechanism is in the left-hand end of the pipe 2. Interposed 125 between the two ends of this mechanism is

40 a rope pulley 19 over which there passes an endless controlling cord 20. Fitted rotatably to the controlling mechanism is a locking device 21 having a projecting part 22 through which pass the various parts of the cord 20. This locking device has a brake shoe 23 which has a surface 24 that interacts with a surface 25 of the rigidly positioned support 17. 70

45 When the parts of the cord 20 are pulled in the direction of the arrow 27 in Figure 6, surface 24 is removed from contact with surface 25, so that the controlling mechanism 15 can be rotated by means of cord 20 and the venetian blind be quickly raised or lowered. When the blind has descended to the height desired the cord is moved in a direction opposite to that of the arrow 27, as a result of which surface 24 again comes into contact with surface 25. Before locking the blind, the slats are tilted to the desired position by pulling one of the cord parts in the reverse direction to that of the lifting or lowering operation. 85

50 It is evident that the invention is not restricted to the device described in the foregoing by way of example and that it is also possible to use venetian blinds with an upper beam, in which case the tilting and winding mechanisms are driven with the aid of a spindle positioned inside this upper beam. As an alternative to the locking device described in the foregoing it is also possible to use a different type of locking device, a 90 brake or a slip coupling. It is also possible to make use of tilting and winding mechanisms which are not combined to a single unitary mechanism. 95

55 **WHAT WE CLAIM IS:—**

60 1. A venetian blind having a winding mechanism and a tilting mechanism for the slats of the blind, characterized in that a slip coupling is provided between the winding mechanism and the tilting mechanism to prevent tilting of the slats of the blind by themselves, which tilting mechanism is mounted together with the winding drum upon a driving spindle or in a driving pipe, which spindle or pipe is provided with a 100 brake or other locking device. 110

65 2. A venetian blind according to Claim 1, characterized in that the brake or locking device is operated by the controlling mechanism for drawing up the blind and for tilting the slats. 115

70 3. A venetian blind according to Claim 1 or 2, characterized in that the brake or locking device is provided with one or more projecting parts through which passes a cord, string or similar means serving for 120 raising and lowering the blind and also for operating the brake or locking device. 125

75 4. A venetian blind having a winding mechanism and a tilting mechanism for the

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slats of the blind, substantially as hereinbefore described and illustrated in the accompanying drawings.

BOULT, WADE & TENNANT,  
111/112 Hatton Garden, London, E.C.1,  
Chartered Patent Agents.

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